

Whirlpool Corporation

Smart Appliance Project

Abstract

In the Smart Appliance project, Whirlpool seeks to develop and commercialize home appliances with wireless communications and advanced control software. The objectives are to (1) develop a wireless communications protocol for home appliances, (2) design appliance control and interface software optimized for demand response and time-based rate programs, and (3) produce cost-effective communications hardware for appliances. With the development of the new appliances and systems, Whirlpool aims to provide cost-effective options for residential customers that can enhance the effectiveness of time-based rate and load management programs to reduce peak demand.

Smart Grid Features

Communications infrastructure includes developing new communications hardware and software for smart appliances. A standard protocol for wireless communication by appliances has not yet been developed. As part of this project, Whirlpool is working with the Association of Home Appliance Manufacturers Smart Grid Task Force to develop a common protocol, which is intended for products across many major manufacturers. This communications system for appliances uses radio frequency systems to interface appliances with home Internet networks and smart meters.

The project enables **advanced electricity service options** through the development of hardware and software for home appliances to interface with smart meters and home area networks. Clothes dryers, dishwashers, and refrigerators are the first set of appliances targeted for these upgrades, though the technology developed is likely usable in a wide range of other home appliances. Smart appliances provide two-way communication with the power company through home Internet networks and advanced metering infrastructure. A customer interface allows users to program their appliances to automatically defer electricity use to reduce electric costs, based on electric rates or pricing alerts.

Timeline

Key Milestones	Target Dates
Equipment development completed	Q3 2012
Commercial market integration completed	Q4 2012

At-A-Glance

Recipient: Whirlpool Corporation

Company Headquarters: Benton Harbor, Michigan

Total Budget: \$38,681,000

Federal Share: \$19,330,000

Project Type: Equipment Manufacturing

Equipment Manufactured

- **Smart Appliances (Wireless Communications and Advanced Control Software)**
 - Clothes dryers
 - Dishwashers
 - Refrigerators

Key Targeted Benefits

- **Reduced Peak Consumption**

Whirlpool Corporation *(continued)*

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